

REMARKS

In the above-identified Office Action the claims were again rejected, this time primarily in view of the newly cited Sagawa patent. By this response, however, independent Claims 17, 20, and 22, have been amended and are believed to be patentable over the cited prior art.

Referring first to amended Claims 17 and 20, Applicant notes that the claimed sensor chip is formed on a single semiconductor chip, and is arranged so that a switch (e.g., 9 in Fig. 3) is driven externally (e.g., control line 10) from outside the single semiconductor chip (e.g., 1) to effect control between internally driving the image pickup portion of the sensor and externally driving the image pickup portion. Also, independent Claim 22 has been amended to require that the image pickup apparatus includes a sensor chip formed on a single semiconductor chip, a first control circuit (e.g., 8 in Fig. 3) of a drive pulse generating circuit, included in the single semiconductor chip, and a second control circuit (e.g., 2 in Fig. 3) of the drive pulse generating circuit, provided externally to the single semiconductor chip. The sensor chip includes a switch so as to effect switching between internally driving an image pickup portion of the sensor chip by the first control circuit and externally driving the image pickup portion by the second control circuit.

Accordingly, the present invention is not merely for switching between clock pulses, but controls driving a single sensor chip (i.e., control of a drive pulse generation circuit included in the single sensor chip) to switch between internal control and externally controlling the sensor chip from outside. This feature of the present invention is not disclosed in any of the cited references.

In particular, the cited Sagawa patent discloses in Fig. 5 that an optical character reader includes a photoelectric conversion circuit 6 and a driving apparatus 8. The driving apparatus 8, as shown in Fig. 6, includes a switch 120 to select one of respective clock pulses generated externally and internally. However, the Sagawa reference fails to disclose Applicant's claimed external control of the switch from outside of a single semiconductor sensor chip and also fails to disclose a sensor drive control circuit provided externally to the single semiconductor sensor chip in addition to an internal drive control circuit. In this context, the Sagawa patent does not disclose the single semiconductor sensor chip nor a drive pulse generation circuit included therein, wherefore that reference fails to disclose internal and external control of the drive pulse generation circuit, respectively, by the internal and external control circuits, and switching between those controls. Moreover, the "admitted prior art" (Figs. 1 and 2) does not disclose the internal control circuit arranged on the single semiconductor sensor chip and therefore does not disclose the switch recited in amended independent Claims 17, 20, and 22. Also, the cited Yasuda patent discloses in Figs. 1 and 4 an image sensor which includes therein two clock generating circuits SSG1 and SSG2, and switching therebetween by a switch 20. However, the Yasuda reference also fails to disclose internal and external sensor drive controls, respectively, provided by internal and external control circuits, nor switching therebetween which is controlled externally.

Accompanying this Amendment is a separate communication with which a new sheet 1 of the drawings is being submitted, identifying Figs. 1 and 2 as PRIOR ART, as required in the Office Action.

For all of these various reasons it is believed that pending Claims 17-22 are all allowable. Accordingly, the issuance of a formal Notice of Allowance is respectfully solicited.

Applicant's undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,



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